

Claims

1. A pump system for the subcutaneous delivery of a liquid medicament, having a pump module (10) comprising
 - 5 a stator housing (28) with a chamber (30),
a rotor (32) rotatably and axially slidably received in the chamber and comprising a first axial extension (46) and a second axial extension (48), the first and second axial extensions having different diameters, and
first and second sealing rings (54, 56), mounted around the first and
 - 10 second axial extensions.
2. The pump system according to claim 1, wherein the first and second axial extensions comprise liquid supply channels.
- 15 3. The pump system according to the preceding claim wherein the first and second sealing rings (54, 56) are mounted at an oblique angle φ_1, φ_2 with respect to a plane perpendicular to an axis of rotation of the rotor.
4. The pump system according to claim 2 or 3 wherein the sealing rings are
 - 20 O-ring seals.
5. The pump system according to any one of claims 2 to 4, wherein the liquid supply channels (50) are in the form of axially extending grooves on the surface of the axial extensions.
- 25 6. The pump system according to any one of the preceding claims, wherein the axial extensions extend from opposite sides of a body of the rotor.

7. The pump system according to any one of the preceding claims, wherein the rotor comprises one or more permanent magnets mounted close to a radial periphery of a body of the rotor.

5 8. The pump system according to any one of the preceding claims, further comprising magnetic induction coils (18) mounted in a stator part and acting on one or more permanent magnets mounted in the rotor to function as a step motor.

10 9. The pump system according to any one of the preceding claims, further comprising a position sensor (66) mounted in a stator part for detecting the axial position of the rotor and a position sensor (64) for detecting the axial position of the rotor

15 10. The pump system according to any one of the preceding claims, further comprising a reservoir (8) containing a supply of the liquid medicament, the pump module being assembled to the reservoir and having an inlet (42) in liquid communication with inside of the reservoir.

20 11. The pump system according to the preceding claim, wherein the pump module is mounted on the reservoir and forms therewith a disposable liquid supply unit (6).

25 12. The pump system according to any one of the preceding claims, further comprising an electronic control and communications module (20) connected to magnetic induction coils for driving the rotor.

30 13. The pump system according to the preceding claim, wherein the electronic control and communications module comprises a RF transceiver for wireless communication with a user's display and control unit.

14. The pump system according to any one of the preceding claims, wherein the rotor is primarily made of injected plastic material.
15. The pump system according to the preceding claim, wherein magnets are embedded by overmolding in a body portion of the rotor.
16. The pump system according to any one of the preceding claims, wherein the stator housing is primarily made of injected plastic material.
- 10 17. The pump system according to any one of the preceding claims, wherein the pump module comprises a RFID transponder (23) storing information on calibration of the pump module related to the number of rotor revolutions as a function of the volume of liquid pumped.
- 15 18. The pump system according to claim 12 or 13, wherein the electronic control and communication module comprises a RFID reader (21) for wireless communication with a RFID transponder (23) mounted to a disposable liquid supply unit (6) comprising the pump module (10).